

Amendment to the claims:

1. (Previously presented) A method of representing an image comprising calculating its 1-D Haar wavelet representation, amplitude projections, and combining said image with said 1-D Haar representation and said amplitude projections.
2. (Currently amended) The method of claim 1 wherein said combining includes forming ~~the~~ a discriminating feature analysis (DFA) vector of said image.
3. (Currently amended) The method of claim 2 wherein ~~said DFA is a plurality of DFA vectors are formed~~ based upon training images.
4. (Currently amended) The method of claim 3 wherein said DFA's DFA vectors from said training images are used to model face and non face classes using a single multivariate probability distribution function (PDF) for each of said face classes.
5. (original) The method of claim 4 wherein said models are stored and used for later analysis of input images.
6. (Currently amended) The method of claim 5 further comprising calculating ~~the~~ a DFA vector of an input image to be analyzed.
7. (Currently amended) The method of claim 6 further comprising using said DFAs DFA vector of said input image to classify the image using a Bayesian classifier.
8. (Canceled)
9. (Canceled)
10. (Currently amended) ~~The method of claim 9~~ A method of classifying an input images as being of a first type or of a second type, the method comprising calculating Gaussian PDFs (Probability Density Functions) of image classes of said first type and of said second type using a single multivariate Gaussian PDF, and utilizing said Gaussian PDFs in conjunction with at least one input image to classify said input image as either being of said first type or of said second type,
wherein said first type is a face and said second type is a nonface,
wherein the PDF's PDFs of the face and nonface classes are calculated only after first calculating ~~the~~ a DFA (Discriminating Feature Analysis) vector of each of a plurality of training images.

11. (Currently amended) The method of claim 10 wherein a DFA vector of an input image is calculated and a Bayesian discriminator function is used to process the DFAs DFA vector of the input image to classify said input image as either a face or nonface.

12. (original) The method of claim 11 wherein said PDFs of the face and non face classes are calculated during training based upon a sample set of at least several hundred FERET images.

13. (New) A method, comprising:

modeling a face class of images, wherein images outside said face class of images are nonfaces within a nonface class; and

modeling a subset of said nonfaces which lie closest to said face class, wherein said nonfaces in said subset are support nonfaces.

14. (New) The method of claim 13 wherein said support nonfaces are closest, among said nonfaces in said nonface class, to a decision surface between said face class and said nonface class.

15. (New) The method of claim 13 wherein said modeling said support nonfaces comprises: modeling support nonfaces as a multivariate normal distribution.

16. (New) The method of claim 13 further comprising:

estimating a conditional density function of said nonface class using a plurality of principal components, an input image, a mean nonface value, and eigenvalues of said nonface class.

17. (New) A method comprising:

searching for at least one face sub-image in an input image having a plurality of sub-images;

detecting a first face sub-image in said input image; and

eliminating an area of said input image from further searching based on said detection of said first face sub-image.

18. (New) The method of claim 17 wherein said eliminated area is defined based on an assumption that no other face sub-image overlaps said first face sub-image.

19. (New) The method of claim 17 wherein said eliminated area is defined based on a non-overlap of said first face sub-image and any other face sub-image.

20. (New) The method of claim 17 wherein said searching comprises:

searching for complete faces.

21. (New) A method comprising:

determining whether a sub-image of an input image is homogeneous;

if said sub-image is homogeneous, excluding said sub-image from further processing within a face detection algorithm.

22. (New) The method of claim 21 wherein said determining comprises:

calculating a first mean value for pixels within a left-eye area or a right-eye area of said sub-image; and computing a first average intensity value of pixels in said sub-image having intensity values above said calculated first mean value.

24. (New) The method of claim 23 wherein said determining further comprises:

calculating a second mean value for pixels within a nose-bridge area of said sub-image; and computing a second average intensity value of pixels in said sub-image having intensity values below said second mean value.

26. (New) The method of claim 25 wherein said determining comprises:

identifying said sub-image as homogeneous if said first average intensity value is less than or equal to a product of said second average intensity value and a control factor, said control factor being greater than zero and less than one.

27. (New) The method of claim 25 wherein said control factor equals 0.5.